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Action Plan Outcomes and Suggestions

Increasing Poor Communities' Access to IT and Telecommunications in India – How e-ready is India?

**Consultation
New Delhi, November 27-29, 2001
Supported by USAID-India**



Prepared By Digital Partners¹
http://www.digitalpartners.org/telecom_consultation.html

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Consultation Outcomes

Vigorous competition (made possible by pro-competitive policies) and private investment, along with an effective policy to promote universal service, can dramatically improve network accessibility. The \$8 billion (US) market for telecommunications services in India remains overwhelmingly dominated (over 90%) by an incumbent, BSNL, that is still part of the Government of India.

In age of IT universal service policy must consider access to all Information Technology (IT) services because, in the long-term, voice services are only part of the services necessary to be interconnected to the world.

The application of networked IT can contribute significantly to the economic development of the population of rural and low income areas. As private and public agencies evaluate these applications they should emphasize applications that are sustainable, scalable, and empower the ability of users to experiment freely with networked IT to create new applications. Competition and private investment in the provision of network services and the creation of IT services are essential inputs to this goal.

The Policy Framework

The Indian Government has made major progress toward introducing a pro-competitive framework and effective universal service policy in recent years. But several serious questions remain about its policy program. Moreover, the private and NGO sectors can do much more to contribute to the achievement of effective universal access to IT applications.

During this consultation it was impossible to conduct a comprehensive review of all the issues confronting India if it is to mobilize IT for development purposes. However, there was a strong agreement that any effective agenda would have to give further consideration to the following policy issues:

1. Licensing policy for communications service providers
2. The philosophy of network development for India
3. Interconnection policy for communications services
4. Tariff (pricing) and universal service policies
5. Principles for developing IT services for rural and under-served populations

Licensing Policies

Licensing of telecommunications service providers should not be a barrier to entry into the market. Unfortunately, the proposed policy mix may favor entry by only a few large

competitors, and this in turn will discriminate against some technological options for improving connectivity.² Policymakers should embrace competitive entry by small and medium sized enterprises using a full spectrum of technologies to create networks and deliver services. To avoid these risks India should:

- a. Review the need for any form of license for wire-line services.³ It would be better to replace licensing with a simple registration system.
- b. If India continues to rely on a licensing system, it should drop requirements that a new entrant has to obtain a circle license (roughly a population of 50 million people) that has build-out requirements for the network. Such requirements block smaller entrants, especially those dedicated to rural service.
- c. Review the assumption that interconnection rights only go to Public Switched Telephone Networks. This policy limits the ability to tap the contributions of many important technological options. Examples include:
 - a. Interconnecting corporate VSAT networks to the public network flexibly so that companies can use spare capacity to support rural services.
 - b. Interconnecting private wireless “wide area networks” (e.g., 802.11b systems) to public networks is a major new option for extending network coverage inexpensively.
- d. Reconsider the policy of charging fees for granting a license to wire-line networks. (Revenue sharing schemes are acceptable but the level of the charges should be reviewed carefully to be consistent with strong incentives for private investment.)
- e. Review the policy that blocks entry to networks relying on resale of the services of other networks. Resale facilitates entry and is consistent with the policy of ending micromanagement of the market by government. Resale lowers the price of service for consumers.

Principles Underlying Policies to Promote Network Development

The strategies for developing the network infrastructure should take advantage of the accelerating rate of technological innovation in the communications and IT industries

- a. There is substantial risk that current policy choices will not take full advantage of numerous technology developments that could substantially increase the power, cost effectiveness, and reach of the network. Even though current policy embraces the idea of “technology neutrality” the details of the policy appear to work against such options as:
 - i. Vsat
 - ii. cable
 - iii. the internet’s potential to mix a wide array of services in order to deliver a more effective application—such as combining voice

² The continued restrictions on foreign investment in telecommunications carriers may also impede progress but this is not a focus of this discussion.

³ India already recognizes the benefits of dispensing with licensing for Internet Service Providers and firms providing applications (like telemedicine). India has approximately 135 ISPs with 3.5 million accounts (and an estimated base of 15 million users on those accounts).

- over IP telephony to provide backup help when using data applications
- b. The crucial potential of wireless, both fixed and mobile, requires vigorous implementation of policies that emphasize:
 - i. Release of as much spectrum as possible on a technologically neutral basis (whenever possible), and making the spectrum allocation decisions in a transparent and competitively neutral manner⁴
 - ii. Adoption of international practices to encourage innovative uses of spectrum that can promote novel forms of network build-out: e.g. creation of an unlicensed band for innovative technologies (such as the national information infrastructure band in the US which is used for wireless local area networks and “Bluetooth”)
 - iii. Examination of policies for charging for mobile services. Policies such as “calling party pays” have promoted network development in many countries but also have implications for rural development that require careful consideration.
- c. Policy should encourage the build-out of fiber backbone at national level
 - i. The convergence bill is right to examine the access to rights of way for new fiber networks. Implementing regulations and further policies should look at a broad array of options for easing access to rights of ways—example: access to rights of way of national highway authority.

Interconnection Policy

Interconnection policy is contentious in every country but a strong policy is essential for the development of effective competition. The dominant incumbent carrier has a minimal incentive to interconnect voluntarily because it loses competitive advantage when it offers effective interconnection to its rivals. A sound interconnection policy allows network externalities⁵ to be gained by users of all networks and cost effective, timely sharing of existing network facilities that cannot be duplicated by new entrants in the medium term.

- a. Prompt implementation of pro-competitive interconnection rules is essential to the future of competition and the provision of new rural services in India. The Convergence Bill will not correct India’s weak interconnection policy.
- b. Interconnection rules should be set by regulatory policy, not by terms of the license. TRAI has a mandate to create an interconnection policy and it must act promptly.

⁴ India has done a commendable job of creating more competition in wireless services recently. The licensing of a fourth competitor should bring down prices to consumers and make most consumer price controls unnecessary for mobile services. More flexible pricing will be better for investment and consumers.

⁵ A network is more valuable to a user if it connects to more people. This is a network externality.

- b. Regulation should be asymmetric – apply only to carriers with market power (usually only the former monopolist) or those with “shared market power” (e.g., many rural markets will have only two carriers in the foreseeable future)
- c. The goal is flexible, seamless, cost based interconnection
 - a. End barriers to seamless flexible networking, especially remove the mandatory role of DOT in interconnecting different carriers even if other options are feasible—e.g. do not require a single carrier with licenses in adjacent circles to interconnect through DOT and abolish the anomalies involving interconnection between fixed and mobile carriers.
 - b. Benchmark cost decisions against best international practices in developing and industrial economies because network economics are more alike than different across countries. Do not let poor cost data about DOT block a decision on establishing efficient interconnection prices.
- d. Must allow competitors to tap the network of the dominant carrier on a flexible unbundled basis. Interconnection must cover all key network elements:
 - a. Example: any technically feasible point of presence
 - b. Example: numbering systems, operations support systems and billing
- e. Interconnection must be timely—use such devices as imposing a reference interconnection contract offer devised by the regulator if the parties do not negotiate an agreement within a reasonable period of time.
- f. Use a transparent process to develop interconnection policy. Transparency allows the marketplace and competitors to provide information to regulators and it builds market confidence.
- g. Make sure that the regulator has adequate powers to enforce the interconnection policy.

Universal Service and Tariff (Pricing) Policies

Universal service for rural and underserved urban includes considerations of how to increase network availability while making services affordable.

- a. The benchmarks for universal service may be inappropriate:
 - a. “Teledensity” goals (which measure the number of access lines per 100 people) may mislead because they do not focus on the number of households that have access to the network (e.g., many households have more than one telephone line so teledensity measures overstate network accessibility)
 - b. Universal service measurements do not give proper consideration to the notoriously unreliable service in many rural villages
 - c. Rural service goals emphasize a single line for each household. However, many of the most promising plans for increasing rural networking emphasize shared use of lines in villages.
 - d. Universal service goals do not yet have a realistic plan for IT accessibility. For example, is the emphasis on networking schools the best way to set a commitment to IT accessibility in rural India?
- b. Tariffs should be more flexible and cost-based in order to encourage use.

- a. Rates should reflect costs. On the one hand, rural villagers are hurt more than helped by tariffs that are so low that it is impossible to build a network to provide proper network connectivity to the village. On the other hand, they are hurt severely by inflated long distance rates that are so high that they cannot, for example, afford to call district headquarters (a principal use of telephony in rural India).
- b. Policy and regulation should not hamper flexible tariffing that permits costs to be covered according to market conditions. Some examples include:
 - i. “Lifeline” rates that offer a lower rate for a certain number of calls per month to low income households
 - ii. Flat rates that offer a single monthly price for very large numbers of minutes of service per month—flat rates have been shown to stimulate Internet use in households at all income level
- c. Carriers with no market power should have great freedom of pricing. If a dominant carrier is subject to pricing controls (to prevent abuse of market power) a more flexible system (such as a price cap) is desirable.
 - i. Example: Mobile carriers should be able to use tariff schedules that exceed the current price caps in rural areas if they make a commitment to achieving rural build-out. Shared use of mobile phones in villages could bolster rural access.
- d. Regulation/policy should facilitate alternative business models if rural is to be served—demand is underestimated because pricing and service models are inappropriate/inadequate. This consultation revealed experiments that indicate rural India can afford connectivity given the right business and regulatory model for providing services.⁶
 - i. The government cannot rely on the franchising of local rural services by circle operators to achieve adequate rural connectivity. There are complex problems about financial incentives and business implementation that make the franchising model inadequate for India’s needs.
 - ii. The Rural Telecom Foundation experiment shows the importance of innovative business models that stress different markets—such as shared lines---and differential pricing models
 - iii. Novel sources of demand must be stimulated in order to make the economics of network build-out more attractive
 1. Telecenters find entertainment and family connections are key
 2. Hybrid models—market prices downloaded to IT access point and then delivered by megaphone
- c. Interconnection policy is essential for stimulating private investment in new rural telecom services. For example, local service providers often cannot get cost

⁶ The consultation showed that the cost of building out network infrastructure to rural and under-served regions of India could drop substantially if there is technology flexibility and new entrants with specialized business models (and cost control methods) could enter the market.

- effective access to the national trunk network and thus cannot important services to rural services.
- d. Policy is moving in the right direction for obtaining funding—transparent and competitively neutral tax on service providers.
 - a. In general, cross-subsidies between services (e.g., an unrealistically high price for long distance and an unrealistically low price for local) work poorly—they discourage investment and competition and rarely are the most efficient way to help low income users.
 - b. The government should consider exempting rural services from revenue sharing until an appropriate threshold of connectivity (e.g., a teledensity of 10 in the area covered by a rural exchange) is reached.
 - e. Separate disbursement of funds for universal service provision from the dominant network operator. This approach makes the use of universal service funds more cost effective and better tailored to the needs of particular geographic markets and users. There are several options for achieving this objective:
 - a. Auctioning subsidies to the best service packages (the Chile model) would work better if licensees were not tied to the circle build-out requirement because specialized entrants could pursue the subsidies
 - b. Alternative of subsidizing users directly deserves consideration instead of subsidizing service providers. If used, the subsidy should allow the user to choose freely between different services—the credit could be used for both telecom and IT telecenters
 - c. Other types of incentive systems—e.g., possible revenue on incoming calls to VPTs
 - f. Technology neutrality—mobile networks, WLL, cable systems, and satellite can all contribute to universal service.
 - g. Funding technology experiments on how to improve options for “last kilometer” access is consistent with technology neutrality. The experiments can prove general feasibility and provide valuable operating data. The market can make choices about which technologies to deploy.

End user applications, IT and networking for development

The Government’s policies for promoting the use of networked IT for development should emphasize approaches that are sustainable, scalable, and empower the ability of users to use networks and IT creatively. This implies attractive network pricing options (e.g., flat rate prices for telephone lines) and flexibility in technology and service providers (ISPs and rural coops as hybrid providers).

- a. While there is a national backbone within 200 kms of any village, more powerful backbones at closer ranges combined with flexible “last kilometer” solutions are vital
- b. Regulation/policy should not interfere with IT solutions that will often require hybrid services—electronic commerce combined with voice over internet telephony (or even multimedia services)—provided by unorthodox service n providers (e.g., rural coops).

- a. Censorship of content creates new layers of uncertainties for businesses that can hinder innovation.
- c. IT applications stand a greater chance of being sustainable if they encourage two way flows of content. Examples:
 - a. Smart cards can lower the costs of micro-credit lending by reducing the costs of paperwork. But smart card data flow must be two ways—from the bank to the local bank agent and customer, and from customer to bank.
 - b. Rural areas can be the source of valuable data for government. Agencies should pay for this data that can be uploaded from the network.
 - c. Rural businesses also need the benefits of modern supply chain management. Dual use of business networks might allow them to be extended to rural businesses—such as allowing Vsat to provide service to a rural telecenter and to a business in the village.
- d. How target IT access point subsidies? Which formula should India follow—schools, libraries and hospitals? Other formulas have less clear criteria (e.g., community centers) with less certain financial implications but may be more appropriate to needs of India.
- e. The policies for promoting access may (due to administrative necessity) have to be based on fairly simple operational criteria (e.g., subsidies for all users below a certain income level). But the assessment criteria for evaluating the success of these programs need to look at specific needs of target populations (e.g., women in rural areas).
- f. Government policy is right to promote IT experiments and outreach programs that do not discriminate against commercial applications.
- g. There is a vital role for NGOs and private sector in creating new institutional competence involving commercial and social institutions providing connectivity. Examples:
 - a. Collective program for wiring target social institutions—e.g. schools.
 - b. Collective program to create “facilitating institutions” for IT delivery services—e.g., create a support institution to help create and sustain telecenters in low income and rural areas (e.g., pool purchasing power, training programs etc).
 - c. Vouchers for Internet service use by target user groups (e.g., social workers or women students in rural areas).
 - d. Experiments related to bringing down the costs of end user equipment such as the Simputer, Local Wireless Loop, etc. should be promoted.